M. A. WILLIAMSON
Publisher
JAMES A. LEE
Managing Editor
HENRY M. BATTERS
Market Editor
THEODORE R. OLIVE
Associate Editor
JOHN R. CALLAHAM
Assistant Editor

CHEMICAL & METALLURGICAL ENGINEERING

LESTER B. POPE
Assistant Editor
R. S. McBRIDE
Washington
WILLIAM E. BECKER
San Francisco
E. S. STATELER
Chicago
EARLE MAULDIN
Atlanta

S. D. KIRKPATRICK, *Editor*

Chemical & Metallurgical Engineering is the successor to *Metallurgical & Chemical Engineering*, which, in turn, was a consolidation of *Electrochemical & Metallurgical Industry* and *Iron & Steel Magazine*. The magazine was originally founded as *Electrochemical Industry*.

McGRAW-HILL PUBLISHING COMPANY, INC., NEW YORK CITY

Volume XLVIII

January to December, 1941

GENERAL ALPHABETICAL INDEX

A

Absorption towers—costs of process equipment and accessories. Harding Bliss (charts) .....Dec. *87
Acetic acid—Azeotropic distillation for dehydrating acetic acid. D. F. Othmer .....June *91
Production in 1940.....Feb. *104
Adhesive tape manufacture.....June *95
Adhesives for packaging (A.C.S. convention) .....May 176
Adhesives of methylcellulose (A)....Dec. 131
Adsorption—Solvent recovery by adsorption (A) .....May 182
Agitator, high-speed (E.N.).....Dec. *100
Air conditioning—Bombproof underground spaces for shelters and factories air conditioned. Edward Ledoux..June *82
Correction .....Aug. *153
Air raid protection of factories in Germany. Curt Wachtel.....Apr. *92
Air raid shelters. Edward Ledoux June *82 Aug. *153
Alarm, combustible gas (E.N.).....Feb. 139
Alaska—Chemical industry opportunities. F. J. Weiss .....Sept. *116

Alcohol:
Apparatus to determine rate of condensation of alcohol vapors. Othmer & White (P.N.).....July *114
Canadian patent for making alcohol from apples (N) .....Sept. 139
Industrial alcohol developments..Nov. 98
Manufacture of alcohol from waste sulphite liquor (A).....Dec. 133
Plate efficiency study in ethyl alcohol distillation. Byman & Keyes July *85
Production of alcohol and solvents in 1939-40 (tables).....Feb. 100
Statistics on the uses of denatured alcohol, June 1940 (tables).....July 122
Western wastes as materials for alcohol production. W. C. McIndoe Sept. 111

Aluminum:
Alumina produced from clay by TVA (N) .....Mar. 117
Aluminothermic production of chromium-tungsten alloys (A).....May 183
Alumina production, 1892. E. N. Trump (c).....Sept. *146
Aluminum alloys with magnesium and iron (A).....Dec. 131
Anodic coatings on aluminum (Electrochemical Society) .....Apr. 135
Power rectification in aluminum production. Cox & Bohn.....Sept. *108
Thermal expansion of aluminum (A) Oct. 145
Viscosity of aluminum alloys (A) Aug. 143
Western aluminum plants.....Sept. *106
American Chemical Society—Princeton meeting .....Jan. 129
St. Louis meeting.....May 169
Americaan Gas Association meeting (N) Nov. 140
American Institute of Chemical Engineers—Virginia Beach meeting.Nov. 161
American Institute of Chemists—New York Section meets .....Mar. 126
American Institute of Mining & Metallurgical Engineers—New York meeting .....Mar. 123
American Petroleum Institute—Chicago meeting .....Jan. 130
American Society for Testing Materials—Chicago meeting .....July 134
Amides, high pressure reduction of fatty acid (A) .....Oct. 144

Ammonia:
Aqua ammonia solutions—their freezing points and freeze-resistant applications. E. R. Woodward (P.N.) Apr. *115
Military program for ammonia...Nov. 139
Purifying gas with ammonia.....Aug. 134
Significance of ammonia in the national defense. E. R. Woodward .....Feb. *117
Ammonium nitrate in Germany. Karl Falk .....eb. 120
Ammonium nitrate in Italy.....Feb. *121
Ammonium thiocyanate produced in large quantities .....Aug. 130
Amron, air dry finish.....Aug. 131
Anderson, Evald 1883-1941 (ed).....Aug. 73
Anti-freeze — Developments in anti-freeze .....Nov. 97
Antimony from speiss (A).....Mar. 139
Aromatic extraction from petroleum (A) July 145
Aromatics from heavy petroleum residues. E. L. Hall.....Sept. *100
Asbestos heat resistance (A).....May 184
Asbestos, see also Insulation
Associations—technical societies and trade associations (list) .....Feb. 135

Awards:
Chemical Engineernig award (ed).Oct. 72
Chemical & Metallurgical Engineering announces new plans for award .....May *123
Chemical & Metallurgical Engineering receives Industrial Marketing award (n) .....Oct. 113
Dow Chemical Company receives Chemical & Metallurgical Engineering award .....Nov. *73
Perkin medal given to J. V. Door (n) .....Jan. *115

B

Barrel lift (E.N.).....June *110
Batch-scale car (E.N.).....Oct. *103
Battelle Institute to add new laboratory (N) .....Aug. 113
Batteries, storage, improved (Electrochemical Society) .....Apr. 135
Battery plates, antimony on.....June 153
Bearing metals (A).....Aug. 145
Bearings, roller, for steel mills (A)..Mar. 137
Belt, improved V- (E.N.) .....Sept. *124
Benzene—Alkylation of aromatic hydrocarbons .....Oct. 142
Continuous nitration of benzene without sulphuric acid.....Nov. 165
Benzoic acid preparation (A).....Jan. 136
Beryllium, alloys .....Aug. 133
Bins—Positive cut-off bin gate. C. A. Lee (P.N.) .....Aug. *92
Bitumen, stress responses (A).....Dec. 131
Blacks—Production in 1939-37.....Feb. 113
Blender, double cone (E.N.).....Apr. *106
Boilers, salt entrainment in (A).....Mar. 134
Bombs, see Explosives 48
Bonneville Power Administration recommends certain products used in national defense (table).....Sept. 78

Book Reviews:
Active carbon, the modern purifier. J. W. Hassler .....Nov. 181
Air and gas compression. T. T. Gill Oct. 151
American Gas Association proceedings .....Aug. 151
Analytical chemistry of industrial poisons. M. B. Jacobs.....Nov. 182
Anodic oxidation of aluminum and its alloys. Dr. A. Jenny.....Apr. 145

Book Reviews—Continued:
Applied chemistry for engineers. E. S. Gyngell .....Mar. 131
Applied heat transmission. H. J. Stoever .....Apr. 145
Atlas of nomographs for physical chemistry. Vinogradov & Krasilschikov .....Aug. 151
Chemical action of ultra-violet rays. Ellis & Wells .....Mar. 132
Chemical dictionary .....July 147
Chemical engineers' handbook ed by J. H. Perry.....Dec. 135
Chemical facts and figures.....Feb. 169
Chemical properties of engineering materials. F. A. Rohrman.....Nov. 181
Chemical species. Jean Timmermanns .....Jan. 134
Chemical warfare. Curt Wachtel.May 191
Chemistry of power and explosives. T. L. Davis.....July 147
Chromium chemicals, their discovery, development and use.....July 150
Civil air defense. A. M. Prestiss..Nov. 182
Commodity year book, 1941.....Oct. 151
Design of high pressure plant and the properties of fluids at high pressures. D. M. Newitt.....July 147
Diffusion in and through solids. R. M. Barrer .....Nov. 183
Done in oil. D. D. Leven.....Aug. 148
Dyes made in America, 1915-1940. Wm. Haynes .....July 150
Electric utility cost units and ratios Dec. 146
Elektrochemisches praktikum. Erich Muller .....Jan. 133
Elementary general chemistry. Hogg & Bickel .....Sept. 180
Elementary qualitative analysis. J. H. Reedy .....Feb. 173
Elements of engineering thermodynamics Moyer, Calderwood & Potter Dec. 146
Engineering encyclopedia, ed. by F. D. Jones .....Oct. 152
Experiments in organic chemistry. L. F. Fieser .....Sept. 180
Federal labor laws. Greenman & Sanders .....Aug. 148
Fluorescent light and its applications. Dake & De Ment.....July 149
Fuel-flue gases .....Dec. 146
General chemistry. H. N. Holmes Sept. 180
Handbook for chemical patents. Edward Thomas .....Feb. 170
Handbook of chemistry, ed by N. A. Lange .....Oct. 151
Handbook of mica. R. R. Chowdhury .....Nov. 184
Health hazards of occupational environments Kronenberg & Morse July 151
How to make a morale survey. E. J. Benge .....Nov. 183
How to teach a job. R. D. Bundy May 192
Hunger signs in crops.....July 147
Industrial research laboratories of the U. S. .....July 147
Introduction to general chemistry. Foster & Alyea.....Oct. 153
Introduction to organic chemistry. R. J. Williams .....Oct. 153
Introduction to the kinetic theory of gases. Sir James Jeans.....Jan. 133
Introductory readings in chemical and technical German. Fotos & Bray Mar. 131
La culture du soja. Am. Matagrin July 151
Lacquer and synthetic enamel finishes. R. C. Martin .....Feb. 169

NOTES—(A) Abstract; (c) Comment; (ed) Editorial; (E.N.) Equipment News; *Illustrated; (N) News; (P.N.) Plant Notebook.

Book Reviews—Continued:
Latin America as a source of strategic and other essential materials..Oct. 151
Manual of A.S.T.M. standards on refractory materials .....May 192
Manufacture of compressed yeast. F. G. Walter .....Feb. 171
Men and volts. J. W. Hammond..May 191
Metallurgy of deep drawing and pressing. J. D. Jevons.....Apr. 146
Methods of analysis of coal and coke Aug. 148
Mineral industry during 1940, ed by G. A. Roush .....Nov. 181
Minerals yearbook, 1940.....Jan. 133
Minerals yearbook, review of 1940, ed by H. D. Keiser.....Oct. 151
Mining engineers' handbook, ed by Peele & Church .....Oct. 151
Modern air conditioning, heating and ventilating. Carrier, Cherne & Grant .....June 163
Modern glass practice. S. R. Scholes Aug. 148
Modern plastics catalog, 1941....Feb. 169
Modern practice in leather manufacture. J. A. Wilson.....June 163
Molding technic for bakelite and vinylite plastics .....Nov. 184
Non-ferrous foundry practice. Laing & Rolfe .....Feb. 173
Non-ferrous production metallurgy. J. L. Bray .....June 163
Organic syntheses. N. L. Drake..Nov. 181
Patent fundamentals. L. H. Amdur .....May 191
Photochemistry of gases. Noyes & Leighton .....Sept. 179
Physical chemistry of high polymeric systems. H. Mark.....Jan. 133
Plastics in industry.....Sept. 179
Practical application of aluminium bronze. C. H. Meigh.....Nov. 181
Principles of sewage treatment. Willem Rudolfs .....Sept. 176
Proceedings of the forty-third annual meeting. A.S.T.M.....June 165
Qualitative analysis. Anderson & Hazelhurst .....Nov. 184
Regulations for transportation of explosives and other dangerous articles .....Jan. 135
Retorts from a chemist's laboratory and essences from life's alembic. Jerome Alexander .....Apr. 145
Review of driers and drying. E. F. Bennett .....Sept. 176
Ring index. Patterson & Capell..Feb. 169
Rubber and its use. H. L. Fisher..Aug. 148
Sabotage and how to guard against it. H. D. Farren .....Feb. 172
Sales engineering. Bernard Lester Jan. 133
Salt of the earth. Arthur Pound..July 150
Silicosis conference .....Jan. 135
Spectrochemical analysis of metals and alloys. F. Twyman.....Oct. 152
Stahldraht. A. Pomp.....Sept. 178
Starch and its derivatives. J. A. Radley .....Feb. 171
Technical drafting. C. H. Schumann .....Jan. 133
Temperature, its measurement and control in science and industry..Mar. 131
Temperature measurement. R. L. Weber .....Mar. 132
Temperature measurement and control. R. L. Weber.....Nov. 183
Testing and inspection of engineering materials. Davis, Trexell & Wiskocil .....Dec. 146
Textbook of fire assaying. E. E. Bugbee .....Jan. 134
Theory of organic chemistry. Branch & Calvin .....Mar. 131
Theory of rate processes. Glasstone, Laidler & Eyring .....Sept. 176
Thermochemical calculations. R. R. Wenner .....Nov. 181
Thorpe's dictionary of applied chemistry. Thorpe & Whiteley.....Mar. 131
Trade-names index.....Apr. 145
Trane air conditioning manual..Sept. 176
Water treatment. G. D. James...Sept. 176
Werkstoffe, miracles of German chemistry. Dr. Karl Dorn.....May 191
What are the vitamins? W. H. Eddy Apr. 145
Working, heat-treating and welding of steel. H. L. Campbell.....Feb. 172
Brasses—Preventing dezincification (A) Sept. 162
Bronze castings, porosity in (A).....Nov. 174
Buildings, see Plants
Butadiene developments in 1940.....Feb. 103
Butylenes from ethylene (A).....Aug. 146
Buying by the government (ed).....Sept. 74

C

Cables filled with compressed gas (A) Dec. 131
Calcium metaphosphate manufacture (A.C.S. convention) .....May 174
Calcium-silicon placed on priority list (N) Aug. 113
Carbon:
Carbon and graphite products for equipment in the Chemical Show Nov. 114
Influence of moisture content of carbon black on rubber (Electrochemical Society) .....Apr. 140
Surface area of carbon blacks (Electrochemical Society).....Apr. 140
Carrier, cab-type (E.N.).....Feb. *139
Casein fiber now available to textile mills Nov. 143
Castings, magnesium die (A).....Sept. 164
Catalysts, mixed (A).....Sept. 173
Cathodic protection from corrosion (A) Sept. 166
Caustic soda—Production and distribution of caustic soda in U. S. (charts & table) .....Feb. 92
Celotex B .....Sept. 157
Cement, cold-setting .....July 133
Production in 1939-37.....Feb. 113
Census—data for 1939 and 1937 of chemicals .....Feb. 112
Summary by groups of industries 1939-37 .....Feb. 115
Centrifugals—Chemical Show equipment Nov. *104
Making cane sugar for refining. G. L. Pace .....July *77
Mass distribution in centrifuges (A) May 183
Ceramics — Testing mixing equipment. (A.C.S. convention) .....May 176
Charcoal—Ohio to have charcoal plant for gas masks (N).....Mar. 111
Production of charcoal and wood chemicals in 1940 .....Feb. 102
Chart for calculating roots and numbers of whole and fractional numbers. M. G. Mastin (P.N.).....July 113
Chart tear-off (E.N.).....May *140; Aug. *104
Chemical Engineering:
Again, the professional union (ed) July 70
Engineering colleges seem to be suffering from growing pains (ed)..Jan. 72
Engineering defense training.....Nov. 100
"Federal grants for chemical engineering courses" (ed).....June 77
New and heavier responsibilities (ed) Jan. 71
On getting ahead. H. D. Seymour (c) .....June 130
Opportunities for chemical engineers in fuel technology. H. J. Rose..Jan. 91
Organic chemical engineer.....Oct. 98
Priorities in men (ed).....Mar. 69
Survey of professional employment in industrial-research laboratories (A) Dec. 128
Wanted, chemical man-power (ed) May 73
Chemical Exposition—Reporting what's new in equipment .....Nov. *104-124
Chemical Industry:
Breaking bottlenecks on equipment (ed) .....Mar. 69
Chemical price freezing (ed)....Oct. 73
Chemical process industries of the Middlewest (table) .....Apr. 101
Combined balance sheet and profit and loss statement of American chemical industry Dec. 31, 1939 Feb. 80
Consumption trends (charts & table) Feb. 86
For a better balanced economy (ed) Apr. 69
A good name (ed).....Aug. 73
Growth and changes in American chemical industries Solomon Faoricant (charts) .....Feb. 130
Growth of chemical industry 1899-1939 (chart) .....Feb. 79
Investing in the "chemicals" R. B. Soule (charts & tables)..Apr. 86, May 132
Principal national defense industries recommended by Bonneville Power Administration (table) .....Sept. 78
Production trends (chart & table).Feb. 84
Report on chemical industries' role in Midwestern economy (charts & tables) .....Apr. 95
Southern chemical industry to be surveyed (n) .....Oct. 118
Southern chemical progress report (charts & tables) .....July 93
Soviet defense is served by chemical industry. Karl Falk .....Aug. *74
Too many subsidies for the chemical industry (ed) .....Mar. 67
Western industry (ed).....Sept. 73
Western trends and influences in the chemical process industries...Sept. *75
Why these chemical shortages? (ed) June 75
Chemical & Metallurgical Engineering—Dow Chemical Company receives award .....Nov. *73
New plans for chemical engineering award .....May *123
Chemical & Metallurgical Engineering Reports:
Chemical industries' role in Midwestern economy .....Apr. *95
Chemical man-power for national defense .....Jan. *95
Costs of process equipment and accessories. Harding Bliss (charts) Dec. *87
Design and construction of process plants .....May *75
Facts and figures of American chemical industry .....Feb. *77
Opportunities in the synthetic organic chemical industry .....Oct. *93
Planning energy supply for process industry .....Mar. *91
Process steam and power for process industries .....Aug. *93
Progress and trends in Western process industries .....Sept. *75
Southern chemical progress.....July *93
Speeding production in process industries .....Nov. *85
Water treatment for process industries June 99
Chlorine—Alkali distribution and production (charts & tables).....Feb. 92
New source of chlorine and salt cake Oct. 133
Rationing of chlorine .....Nov. 98
Chlorine Institute—New York meeting (n) Feb. 152
Chromium—Developments in processing Nov. 99
Circuit interrupter, explosion-proof (E.N.) Oct. *104
Classifier, hydro (E.N.).....July *101
Cleaning and polishing preparations—production in 1939-37 .....Feb. 113
Cleaning compound, new .....June 140
Closure, rip-cord, for bags (E.N.)....Oct. *103
Coal—Opportunities for chemical engineers in fuel technology. H. J. Rose Jan. 91
Planning energy supply for process industry (charts) .....Mar. 92
Coating machine (E.N.).....May *140
Coke and Coal Products:
Aromatics, gas and coke from heavy petroleum residues. E. L. Hall Sept. *100
Byproducts obtained from coke ovens, 1940 (table) .....June 124
Byproducts obtained from coke-oven operations in the U. S. in 1939 (table) .....Feb. 110
Coal-tar products—Production and sales of dyes and synthetic chemicals (tables) .....July 120
Combustion properties of coke....July 134
Flowsheet byproduct coke.....Dec. *104
Industrial organic chemicals derived from coal gas and tar (chart)..Oct. 96
Low-temperature carbonization (A.C.S. convention) .....May 169
Planning energy supply for process industry (charts) .....Mar. 92
Color comparator (E.N.).....June *109
Combustion—Submerged combustion as applied to sodium sulphate production. Douglass & Anderson...May *135
Compressors—Fans and compressors in the Chemical Show .....Nov. 107
For laboratory (A).....Feb. 179
Concrete aggregates of blast furnace slag (A) .....May 182
Concrete having high electrical strength Apr. 149
Condenser, evaporative (E.N.).....Mar. *100
Condenser tubes of copper-alloy resist corrosion .....Aug. 133
Construction—Contracts for private industrial building construction 1929-39 (charts & table).....Feb. 82
Containers—Transportation of dangerous articles broadened (N).....May 154
Controllers:
Automatic and remote control (A) Feb. 175
Combustion control (E.N.).....Nov. *128
Conductivity controller (E.N.)..June *110
Controlling chemical operations (A) Feb. 174
Electronic level control (E.N.)....Feb. 139
Instruments and control in the Chemical Show .....Nov. *109
Liquid level controller (E.N.)....June *108
Plastic press controller (E.N.)..Nov. *127
Pre-set controller (E.N.).....May *142
Proportioning controller (E.N.)...Dec. *100
Pulverizer feed control (E.N.)..Nov. *127
Ratio controller (E.N.).....Aug. *104
Temperature controller (E.N.)...Jan. *106
Time cycle controller (E.N.)....Oct. *104
Conveyors:
Bulk-flow conveyor (E.N.).....Aug. *101
Chart showing sequence of flow and importance of air and gravity in conveyors .....June 88
Coke conveyor (E.N.).....Aug. 102
Pneumatic belt carrier (E.N.)..Aug. *101
Vertical screw conveyor (E.N.).Aug. *102
Vibrating conveyor (E.N.).....June *108
Copper—Cold rolling (A).....Oct. 149
Electrodeposited copper (Electrochemical Society) .....Apr. 138
Cork—How Armstrong Cork Co. is preparing for total-defense production. T. R. Olive .....Oct. *74
Corrosion:
Cathodic protection from corrosion (A) Sept. 166
Condensing equipment corrosion..July 137
Cracks in sulphite cookers (A)..Mar. 137
How tin corrodes.....Apr. 150
Lining, corrosion-resistant.....May 159
Metal protection (A).....Nov. 177
Phosphorus corrosion of platinum ware (A) .....Mar. 134
Platinum-clad equipment. L. C. Burman .....Mar. *89
Rate of rusting.....July 136
Resistant coating .....Nov. 158
Silver offers resistance to corrosion when used in chemical equipment. Butts & Giacobbe.....Dec. *76
Statistical method for corrosion..July 134
Thermoplastics used for corrosion prevention (A) .....Jan. 136
Cotton linters—As a source of chemical cellulose. G. D. Bieber.....Jan. *92
Flow sheet for chemical cotton production .....Apr. *108
Purification. J. A. Lee.....Apr. *90
Coupler, compact (E.N.).....Mar. *100
Coupling, floating shaft (E.N.)....June *125
Coupling, pneumatic shaft (E.N.)...June *110
Cover-seal (E.N.).....Jan. 104
Crusher, gyratory (E.N.).....Mar. *101
Crystallization—Making cane sugar for refining. G. L. Pace.....July *77
Crystallizers—costs of process equipment and accessories. Harding Bliss (charts) .....Dec. *87
Cutter, knife (E.N.) .....Oct. *104

NOTES—(A) Abstract; (c) Comment; (ed) Editorial; (E.N.) Equipment News; *Illustrated; (N) News; (P.N.) Plant Notebook.

D

Detergents, efficiency of (A).....July 140
Detergent, synthetic .....Oct. 130
Detonators, see Explosives
Diaphragms, electrolytic (E.N.).....Dec. 102
Diatomaceous earth in Oregon. P.D.V. Manning .....Sept. *114
Diesel fuel accelerators (A).....Sept. 170
Dissolver, jacketed (E.N.).....Aug. *102
Distillation:
Azeotropic distillation for dehydrating acetic acid. D. F. Othmer.....June *91
Distillation in a wetted-wall column Nov. 172
High vacuum distillation (A)....Nov. 179
Plate efficiency study in ethyl alcohol distillation.. Byman & Keyes..July *85
Spray towers for distilling and condensing (A) .....Oct. 147
Wetted-wall tower distillation...Nov. 161
Drive—Adjustable a.c. (E.N.) .....June *107
Variable speed (E.N.).....Mar. *99
Drugs and medicines—Production in 1939-37 .....Feb. 113
Drying:
Continuous centrifugal dryer (E.N.) Oct. *101
Costs of process equipment and accessories. Harding Bliss (charts) Dec. *87
Design of a urea resin plant Brothman & Weber.....Dec. *73
Dispersion dryer (E.N.).....May *139
Dryers in the Chemical Show....Nov. 105
Drying moist materials (A).....Nov. 174
Drying of solids by through-circulation .....Nov. 161
Infra-red dryers (A) .....Oct. 144
Stratification of gases in kilns and dryers. Edward Ledoux..pt. 1, Oct. *83
Textile finishing machines (A)...Jan. 137
Vacuum drying of pigments (A)..Jan. 136
Dust and Fume Handling:
Air washer .....Aug. *137
Corrosive in flue gas (A).....Oct. 149
Dust collectors in the Chemical Show Nov. *106
Unit dust collector (E.N.).....July *103
Dec. *100
Dyeing—Dyes, new.....June 138
Opportunities in the synthetic organic chemical industry report.....Oct. *93
Production and sales of dyes and synthetic chemicals (tables).....July 120

E

Editorials:
Again, the professional union....July 70
Aid for engineering research.....Dec. 65
Air-raid protection .....Dec. 64
All-out on all fronts.....Dec. 64
Another slice for TVA.....Apr. 70
Better be ready.....June 76
Breaking bottlenecks on equipment Mar. 69
Bringing it home.....Aug. 73
Can process plant shops help?....Apr. 70
Chemical price freezing.....Oct. 73
Closer Canadian cooperation.....July 71
Closer cooperation needed.....Aug. 72
Controlling chlorine .....Dec. 64
A declaration of peace.....June 77
Economics of defense.....Feb. 75
Emphasis on development.....July 70
Evald Anderson, 1883-1941.....Aug. 73
Expansion in soybean processing..Apr. 71
For a better balanced economy..Apr. 69
For a moratorium on controversies Aug. *71
Foreign entanglements?.....Jan. 73
Getting out the goods under "all out" conditions .....Nov. 72
Good-bye and good luck!.....Sept. 74
A good name .....Aug. 73
Growing pains .....Jan. 72
Industry's call to arms.....Nov. 71
Investing in the future.....July 71
Know your customer better.....Feb. 76
Magnifying magnesium .....Mar. 68
Making Uncle Sam a better buyer Sept. 74
Mobilizing engineering .....Oct. 73
New and heavier responsibilities.Jan. 71
No monopolies on patriotism.....Aug. 73
No subsidies preferred.....Mar. 67
Our ministry of supply.....Sept. 74
Our part in civilian defense.....Dec. 63
Our plans and yours.....Jan. 73
Painful shortage of ships.....June 76
Pay-off in the West.....Sept. 73
Personnel policies grow.....Jan. 76
Petroleum and national defense..Apr. 71
Planning for "ersatz".....May 74
Planning for scarcity.....Oct. 73
Plastics' big chance.....Mar. 68
Politics as usual.....May 74
Post-war power abundance.....Aug. 72
Priorities in men.....Mar. 69
Recognition of achievement.....Oct. 72
Research, the resource.....July 69
"Respected friends".....July 71
Reveille in Washington.....Oct. 71
Seek subcontractor's aid.....Feb. 76
So you're going to expand?.....May 73
"Somebody gets hurt".....Mar. 68
Speed with safety.....Jan. 72
To help the unemployed.....Mar. 68
Too many plants started.....Oct. 72
Trusts and anti-trusts.....Feb. 76
United States rubber monopoly...July 70
Want to teach?.....Sept. 74
Wanted, chemical man-power....May 73
We apologize .....June 77
What causes inflation.....Dec. 65

Editorials—Continued:
Who can declare war?.....May 74
Whose stock-piles are we building? Apr. 70
Why these chemical shortages?..June 75
Education—Government training program in engineering (table)....Jan. 101
Electric transmission system in Pacific Northwest (map).....Sept. 80
Electrochemical Society meets in Cleveland (n) .....Apr. 135
Electrocoating fabrics .....Aug. *139
Electrolytic blackener .....July 133
Electron microscope (A).....Oct. 144
Emulsifiers and emollients for cosmetics Aug. 130
Engineers—Engineers' Defense Board organized (ed).....Oct. 73; (N) Oct. 113
Engineering defense training....Aug. 133
Government training program in engineering (table) .....Jan. 101
Regional advisers on defense training .....Jan. 99
Technical man-power in the West (tables) .....Sept. 85
Engineers' Council for Professional Development looks ahead. R. E. Doherty Aug. *85
Engines—Costs of steam. Ward Greiner, A. A. Prior (c).....July 124
Steam engine performance shows savings in power costs for process plants. F. J. Vonachen (P.N.)..May 138

Equipment News:
Agitator, high-speed .....Dec. *100
Alarm, combustible gas .....Feb. *139
Barrel lift .....June *110
Batch-scale car .....Oct. *103
Blender, double cone .....Apr. *106
Boiler water comparator.....June *109
Boiler water control.....Nov. *128
Bus, high strength.....May *141
Carrier, cab-type .....Feb. *139
Centrifugal pump .....July *102
Chart tear-off .....May *140
Chart tear-off device .....Aug. *104
Chemical Show—reporting what's new in equipment.....Nov. *104-124
Circuit interrupter, explosion-proof Oct. *104
Classifier, hydro .....July *101
Cleaner for metals.....Jan. 105
Coal scale .....Oct. *102
Coater, container .....May *140
Color comparator .....June *109
Condenser, evaporative .....Mar. *100
Control, combustion .....Nov. *128
Control, electronic level.....Feb. *139
Control, pulverizer feed.....Nov. *127
Controller, conductivity .....June *110
Controller, liquid level.....June *108
Controller, plastic press.....Nov. *127
Controller, pre-set .....May *142
Controller, proportioning.....Dec. *100
Controller, ratio .....Aug. *104
Controller, temperature .....Jan. *106
Controller, time cycle.....Oct. *104
Conveyor, bulk-flow .....Aug. *101
Conveyor carrier, pneumatic...Aug. *101
Conveyor, coke .....Aug. 102
Conveyor, vertical screw (E.N.).Aug. *102
Conveyor, vibrating .....June *108
Costs of process equipment and accessories. Harding Bliss (charts) Dec. *87
Coupler, compact .....Mar. *100
Coupling, floating-shaft.....Sept. *125
Coupling, pipe .....Apr. *106
Coupling, pneumatic shaft.....June *110
Cover-seal .....Jan. 104
Crusher, gyratory .....Mar. *101
Cutter, knife .....Oct. *104
Diaphragms, electrolytic .....Dec. 102
Dissolver, jacketed .....Aug. *102
Drive, variable speed..Mar. *99; June *107
Dryer, continuous centrifugal....Oct. *101
Dryer, dispersion .....May *139
Dust collector .....Dec. *100
Dust collector, unit.....July *103
Exciter, combination .....Sept. *125
Extraction unit .....Oct. *101
Fabric permeability tester.....Oct. *101
Fan as man-cooler.....Aug. *101
Fan, ventilating .....Aug. *102
Feeder, heavy duty.....May *140
Fiber, industrial wood.....Dec. *100
Filter, combination .....Nov. *125
Filter, filter-aid .....Sept. *124
Filter press, sluicing.....Feb. *140
Filter scrubber .....June *109
Filter, small batch.....Sept. *123
Firebrick, insulating .....Aug. *101
Floodlight, anti-sabotage .....Nov. *125
Floodlight, swivel .....June *108
Floodlighting unit .....Jan. *105
Gage recorder, pressure.....Dec. *102
Gas burner, forced draft.....July 102
Generator, portable .....July 103
Gloves, solvent-proof .....July *103
Goggles for use with respirators..July *104
Grinders .....Oct. *102
Gun, metal spray.....July 103
Heat exchanger .....July *102
Heater, down-blast .....Apr. *104
Heater, electric unit.....Dec. *99
Heaters, immersion...Jan. *103; Sept. *125
How to ease equipment bottlenecks Nov. 88
Humidifier, air operated.....Mar. *101
Idler, conveyor return.....July *101
Idler, rubber troughing.....Sept. 123
Indicator, drum level.....Sept. *123
Infra-red lamp .....Feb. *139
Infra-red unit .....Mar. *100
Joint rotary pressure.....May 139
Koroseal tubing .....Jan. 105
Lenses, fluorescent light.....Aug. *103
Loader, improved .....Jan. *104

Equipment News—Continued:
Lubrication system, central.....Jan. 104
Lubricator, high pressure.....Apr. *106
Lubricator, one-pipe .....July *101
Manometer, direct-reading ....Jan. *106
Metal spray gun.....Aug. 102
Mill, colloid .....Apr. *105
Mill, rotary disk .....Nov. *125
Mill, stainless steel ball.....May *141
Mixer, air-powered .....Oct. *102
Mixer, air-motor .....Apr. *104
Mixer, large capacity.....Mar. *102
Mixer, paste .....Apr. *104
Mixer, plastics .....Apr. *104
Mixer, solvent recovery.....June *108
Mixing truck .....Apr. *106
Molder, vertical injection.....Apr. *105
Motor, polyphase induction....Feb. *138
Motor, sleeve bearing.....Mar. *101
Motor, splashproof .....July *104
Motor, vertical .....May *141
Notol as a substitute for toinol..Jan. 105
Nozzle, spray .....Jan. *104
Oxygen recorder .....June *107
Packer, hydraulic .....Oct. *102
pH indicator .....Oct. *101
Photoelectric spectrophotometer.Nov. *128
Pillow blocks .....Dec. *100
Plastic packing .....Feb. *138
Porous metal .....Sept. *123
Potentiometer pyrometer .....Aug. *104
Press, automatic molding.....Jan. 103
Press closer .....Apr. *106
Pulper, small capacity.....Sept. *125
Pump, acid .....Oct. *103
Pump, close-coupled .....Jan. 103
Pump drive .....Feb. *138
Pump, fractionating .....May *141
Pump, horizontal-shaft .....Sept. *126
Pump, proportioning..Apr. *105; May *140
Pump, rotary industrial.....Aug. 101
Pump, small glass.....June *107
Pump, submerged sump.....July *101
Pump, turbine .....Nov. *126
Pump, vertical .....May *141
Pumping unit, duplex.....Dec. *100
Pyroflex .....Jan. 105
Pyrometer indicator .....Nov. *127
Pyrometer, radiation .....Apr. *106
Recorder, dissolved oxygen....Mar. *99
Refiner, tilted .....Apr. *105
Regulator, temperature .....May *141
Relay, time .....Dec. *102
Rip-cord closure for bags.....Oct. *103
Roll grab .....Dec. *102
Scale, automatic coal.....Mar. *99
Scale, platform .....Jan. *106
Screen, roto-flow .....Dec. *99
Screen, vibrating .....May *139
Scrubber, gas .....June *107
Separator, dry magnetic.....June 109
Separator, induction .....Nov. *127
Shovel, power .....May *139
Solvent stripper for vacuum pumps Oct. *103
Speed reducer .....Feb. *140
Stacker, drum tilting.....June *108
Stacker, spring-balanced .....Nov. *126
Starter, corrosion-resisting .....Sept. *126
Starter, solenoid .....Aug. *103
Starter, 2,300-volt .....Dec. *99
Steam trap, combination.....Jan. 103
Steam trap, high pressure.....July *102
Stuffing box .....Jan. *103
Sulphide tester .....Sept. 124
Switch, improved mercury .....Dec. *99
Timer, moistureproof .....Jan. *104
Tipper, drum .....Mar. *101
Tires, conductor industrial.....Sept. *124
Trailer, fire-fighting .....Mar. *100
Trailer, welder .....Sept. *124
Transformer, Hipersil .....July *102
Transmitter, remote .....Jan. *105
Truck, hand lift.....May *140
Truck, lift .....Jan. *103
Truck, lifting fork.....Feb. *138
Unwinder, hydraulic-brake ...Nov. *125
V-belt .....Sept. *124
Valve, cylindrical plug.....Aug. *102
Valve, drum filling.....May *142
Valve, flow control.....Mar. *102
Valve, gas measuring.....July *103
Valve, motor-operated .....Apr. *104
Valve, positioner for.....July *104
Valve, pressure reducing.....Jan. *105
Valve, solenoid .....May *140
Vapor scrubbing system.....Nov. *128
Welder protection .....Dec. *102
Whiteprint machine .....Dec. *100
X-ray machine for welding inspection Sept. *123
Water treatment equipment....Jan. 104
Welding rings .....July *103
Evaporation — Evaporative condenser (E. N.) .....Mar. *100
Making cane sugar for refining. G. L. Pace .....July *77
Exciter, combination (E.N.) .....Sept. *125
Explosion—Unit operation of the process industries. Douglas Meigs ....Feb. *122

Explosives:
Canadian explosives plants (A)..Apr. 152
Charlestown, Ind. now has biggest U. S. powder plant. S. D. Kirkpatrick .....Apr. *72
Making explosives for World War II. Jules Bebie.....Oct. *76
Making smokeless powder at Radford, Va. .....Apr. *103
Kankakee Ordnance Works is constructed to produce TNT and DNT explosives. S. D. Kirkpatrick May *125
Safe practice in the manufacture of commercial detonators. G. F. Rolland .....June *96
Significance of ammonia in the national defense. E. R. Woodward Feb. *117

NOTES—(A) Abstract; (c) Comment; (ed) Editorial; (E.N.) Equipment News; * Illustrated; (N) News; (P.N.) Plant Notebook.

Exports and imports—Exports and imports trade in chemicals, by groups 1929-40 (charts & tables).....Feb. 88
Export trade in chemicals makes new record under war-time influences (chart).....Nov. 147
Technical data under export control. Capt. W. E. Elliott.....Nov. 102
Extraction:
Counter-current liquid-liquid extraction in a wetted-wall tower...Nov. 167
Extraction of fatty acids by means of liquid propane.....Nov. 164
Extraction unit (E.N.).....Oct. *101
Liquid-liquid extraction in wetted-wall and packed columns.....Nov. 162
Mixed liquid extraction (A).....June 156

F

Fabric permeameter (E.N.).....Oct. *101
Factices as compounding materials (A) Oct. 148
Fans—Fan as man-cooler (E.N.)....Aug. *101
Fans and compressors in the Chemical Show .....Nov. *107
Ventilating (E.N.) .....Aug. *102
Feeder, heavy duty (E.N.).....May *140
Feeders and weighers in the Chemical Show .....Nov. 108
Ferric sulphate in metal pickling...Aug. 136
Fertilizers:
Consumption, exports and imports of fertilizers in U. S. 1939-40 (tables) Feb. 94
Cooling ammoniated fertilizers...Oct. 133
National Fertilizer Association makes a study of customer problems (ed) Feb. 76
Nitrogen chemical shortage.....Nov. 98
Production of fertilizers in 1939-37 Feb. 114
Waste sulphite liquor fertilizer..Oct. 135
Fiber, industrial wood (E.N.).....Dec. *100
Fiberboard mill in Mobile. J. A. Lee..Aug. *87
Filtration:
Air washer .....Aug. *137
Accelerated filtration of slurries (A) June *157
Clarifying efficiency of diatomaceous filter aids .....Nov. 162
Costs of process equipment and accessories. Harding Bliss (charts) Dec. *87
Dewatering and drying of granular materials with rotary vacuum and top-feed filters. A. J. Barneble July *80
Filter-aid filter (E.N.).....Sept. *124
Filter aids in sugar refining....Oct. 141
Filter, combination (E.N.).....Nov. *125
Filter scrubber (E.N.).....June *109
Filter wash control (P.N.).....Aug. 92
Filters in the Chemical Show...Nov. 108
Sluicing filter press (E.N.).....Feb. *140
Small batch filter (E.N.).....Sept. *123
Vinyon now entering varied filter applications. W. G. Luttge.....June *98
Finance—Investing in the "chemicals"—the industry. R. P. Soule (charts & tables) .....Apr. *86
Investing in the "Chemicals"—the stocks. R. P. Soule (chart)....May 132
Finishes for machinery.....Sept. 156
Fire protection:
Carbon dioxide fire-fighting trailer (E.N.) .....Mar. *100
Fire protecting engineering.....Aug. 135
New equipment at the Chemical Show Nov. *121
Protecting industrial plants from magnesium fires. A. B. Guise June *85
Firebrick, insulating (E.N.).....Aug. *101
Flexalyn, protective coating.....Aug. 130
Flood precautions to minimize plant losses. G. W. McBride.....Feb. *132
Floor coverings, hard surface—production in 1939-37 .....Feb. 114
Floors, see Plants
Flow equations for thin plate orifices. C. J. Schilling (P.N.).....Aug. *91
Flow sheets:
Back-pressure control arrangement balancing power and process..Mar. 95
Byproduct coke .....Dec. *104
Chemical cotton production....Apr. *108
Continuous solvent extraction....Apr. 85
Conversion of raw cotton into smokeless powder .....Apr. 75
Flash drying of sludge.....Jan. *108
Generalized flowsheet of the refinery of the Union Potash & Chemical Co. .....June 79
Magnesium from sea water....Nov. *130
Natural gas liquefaction plant for gas storage at Cleveland.....Jan. 75
Production of 570 b.t.u. gas together with tar, briquets and aromatics .....Sept. 102
Raw sugar from cane.....July *106
Rubber reclaiming .....June *112
Solvent dewaxing lubricants....Oct. *106
Soybean oil extraction with normal hexane .....Sept. *128
Sulphite pulp .....Aug. *106
Sulphur mining at Newgulf....Mar. *104
Sulphuric acid from refinery sludge May *144
Trona and wyomingite refining..Sept. 113
White potato starch process in Maine plant .....Mar. 78
Zinc oxide production.....Feb. *142
Fluorescent lamps, see Lighting
Fluorometer (A) .....Nov. 178
Food substitutes developed by German chemists .....June 126
Fractionating systems, design of multicomponent. Scott Crosley (P.N.) Oct. *92
Fractionation (Electrochemical Society) Apr. 141
Freezing rate (A) .....Sept. 170
Fuel—Evaluation of diesel fuels.....July 139
Opportunities for chemical engineering fuel technology. H. J. Rose..Jan. 91
Planning energy supply for process industry (charts) .....Mar. 92
Processing fuels for industry (charts) Mar. 96
Utilizing wood paste for fuel (A) Dec. 131
Furnaces—Basic charges in the Martin furnaces (A) .....Oct. 147
Furnace protection system (E.N.) Mar. *102
Gas furnace flue losses (A.C.S. convention) .....May *171
Metallic resistor furnaces (Electrochemical Society) .....Apr. 137

G

Gage recorder, pressure (E.N.).....Dec. *102
Gas:
Bacterial gas purification (A)..Nov. 175
Compressed and liquefied gas production 1939-37 .....Feb. 113
Corrosive in flue gas (A).....Oct. 149
Detoxifying industrial gases (A).Sept. 175
European war and chemicals....Nov. 169
Flue gas composition (A.C.S. convention) .....May 179
Flue losses from gas furnaces (A.C.S. convention) .....May *171
Gas discharge from nozzles.....Apr. 148
Gas reactions under the influence of an electric arc (A).....Oct. 146
Preparation protects shoes against mustard gas (N).....July 115
Scrubber for gas (E.N.).....June *107
Separating gases (A).....Feb. 178
Stratification of gases in kilns and dryers. Edward Ledoux..pt. 1, Oct. *83
Water vapor in producer gas (A) May 185
Gas see also Natural gas
Gas burner, forced draft (E.N.).....July 102
Gasoline:
Catalytically cracked gasoline...Oct. 142
Catalytic gasoline synthesis (A) June 160
Hydroforming, a new refining process. Smith & Moore.....Apr. *77
Pressure treatment of motor fuel Apr. 147
Status of high-octane aviation gasoline (A) .....Dec. 129
Gates for bins. C. A. Lee (P.N.).....Aug. *92
Gelatine—Production of glue and gelatine in 1939-37.....Feb. 114
Generator, portable (E.N.).....July 103
Generator rating and output of large public utility systems in Western States (tables) .....Sept. 81
Germany:
Chemicals play important part in expanded trade agreement between Germany and Russia.....Mar. 114
Conquered territories contribute much to payment of Germany's war bill Apr. 122
Food substitutes developed.....June 126
Government company in Germany to regulate oil industry in conquered countries .....May 156
Industrial accidents in chemical plants increase .....July 118
International cartels established as part of new European economy.Aug. 118
Production of war goods is decentralized to limit air-raid losses Feb. 152
Prolongation of Russian campaign makes German oil situation more precarious .....Oct. 120
Reorganization of Europe's chemical industry to achieve self-sufficiency Sept. 142
Scarcity of containers has affected deliveries of goods (n).....Jan. 118
Scarcity of materials has stimulated research in all branches of the German glass industry.....Nov. 144
Stimulating establishment of new plants for producing synthetics in Europe .....Dec. 116
Glass:
Electrically conducting glass (A).Dec. 132
Furnace atmospheres in glassmaking (A) .....Sept. 171
Measuring acid resistance of glass (A) .....Feb. 178
Production of glass in 1939-37..Feb. 114
Safety glass .....June 138
Scarcity of materials has stimulated research in all branches of the German glass industry.....Nov. 144
Spinning glass fiber (A).....Feb. 178
Substituting construction materials Nov. *90
Transparent glass building block.Nov. 159
Glauber salt production in California. P. D. V. Manning.....Sept. 98
Gloves, solvent proof (E.N.).....July *102
Glue, plastic .....July 133
Glue—Production of glue and gelatine in 1939-37 .....Feb. 114
Glycerine—Economic aspects of synthetic glycerine production. E. C. Williams & Associates.....Jan. *87
Glycerine intermediates and derivatives .....Jan. 89
Production of soap and glycerine in 1939-37 .....Feb. 116
Goggles for use with respirators (E.N.) July *104
Grease and tallow see Oils and Fats
Great Britain:
Greater control over chemicals and skilled chemical workers in British industry .....Oct. 122
Heavy demand for chemicals stimulates development of new products Sept. 140
Imports of chromite, liquid rosins, and starch placed under government agencies .....Dec. 114
Restricted use of chemicals for civilian goods effects economies in production .....Nov. 142
Grinder (E.N.) .....Oct. *102
Grinding — Chemical Show equipment Nov. *105
Gun, spray metal.....July 103

H

Hardening, dip (A).....Oct. 144
Heat:
Down-blast heater (E.N.).....Apr. *10d
Electric heating (A).....Mar. 136
Flue-gas recirculation (A) .....Sept 168
Immersion heaters (P. N.)..Jan. 103; Sept. *125
Heater, electric unit (E.N.).....Dec. *99
Process steam and power for process industries report .....Aug. *93
Specific heat chart for combustion gases aids solution of heating problems. D. S. Davis (E.N.).....June 120
Stratification of gases in kilns and dryers. Edward Ledoux ..pt. 1, Oct. *83
Surface hardening by induction discussed at Electro-chemical Society June 151
Heat, see also Infra-red
Heat exchangers—Costs of process equipment and accessories. Harding Bliss (charts) .....Dec. *87
Heat exchanger (E.N.).....July *102
Heat exchangers in the Chemical Show .....Nov. 109
Heat indicating pencils (A)..... Nov. 176
Heat transfer—American Institute of Chemical Engineers discusses heat transfer .....June 144
Apparatus determines heat transfer coefficients for condensing vapors of various alcohols. Othmer & White (P.N.) .....July *114
Heat transfer film coefficients..June 153
Heavyspar refining (A).....July 140
Hexanitromannite used in manufacturing detonators for safety. G. F. Rolland .....June *96
High pressure—Welded jacketed pressure vessels (A) .....Feb. 174
High pressure vessels, multi-layer construction .....Nov. 165
Humidifier, air operated (E.N.)....Mar. *101
Hydroforming, a new refining process. Smith & Moore.....Apr. *77

I

Idler, conveyor return (E.N.).....July *101
Idler, rubber troughing (E.N.).....Sept. 123
Ignitron mercury arc rectifiers in aluminum production. Cox & Bohn Sept. *108
Indicator, drum level (E.N.).....Sept. *123
Infra-red lamp (E.N.).....Feb. *139
Infra-red unit (E.N.).....Mar. *100
Insecticide Act modified (n).....Oct. 113
Insectides and related compounds—Production in 1939-37 .....Feb. 114
Institute of Gas Technology to be established (ed) .....July 71
Insulation:
Glass fiber insulation (A).....May 182
Heat shock effects on porcelain insulators (A) .....Aug. 144
High voltage insulation.....Apr. 150
Insulating enamel baked on wire (A) Aug. 142
Insulation tip of plastics. J. O. G. Gibbons (P.N.) .....July 113
Thermal, for industry. S. V. Saginor Jan. *85
Iron—Vanadium in cast iron (A)...Nov. 174
Iron plating .....Nov. 163

J

Joint, rotary pressure (E.N.).....May 139
Junior Chemical Engineers elect officers (N) .....Aug. 116

K

Kilns—Burning mechanism in cement kilns (A) .....Aug. 146
Stratification of gases in kilns and dryers. Edward Ledoux..pt. 1, Oct. *83
Kolok, textile chemical.....Aug. 131
Koroseal tubing (E.N.).....Jan. 105

L

Labor:
Chemical man-power for national defense—report (charts & tables) Jan. 96
Meeting the man-power shortage..Nov. 100
Personnel facilities for industrial workers. F. W. Maynard....May *108
Personnel policies grow (ed)....June 76
Safety in a small plant. J. T. Morris Oct. 79
Up-grading personnel in contract sulphuric plant (chart).....Nov. 101

NOTES—(A) Abstract; (c) Comment; (ed) Editorial; (E.N.) Equipment News; * Illustrated; (N) News; (P.N.) Plant Notebook.

Lacquered food tins (A).....July 144
Laminated wood (A).....Sept. 160
Langbeinite ore used to produce sulphate of potash. S. D. Kirkpatrick..Jan. *77
Lauric acid .....Sept. 156
Lead and zinc pigment sales in 1940..Feb. 109
Leather—Preparation protects shoes against mustard gas (N).....July 115
Present status of tanning chemicals (A) .....Dec. 128
Lighting:
Floodlight, anti-sabotage (N.E.).Nov. *125
Floodlight, swivel (E.N.).....June *108
Floodlighting unit (E.N.).....Jan. *105
Fluorescent lamp lenses (E.N.) Aug. *103
Fluorescent lamp plant, windowless, at Fairmont, W. Va. begins operations .....Aug. *82
Fluorescent lamps use various chemicals. J. W. Marden.....Aug. *80
Protective lighting for plants....Oct. 136
Lime—Production in 1939-37.....Feb. 114
Liquid-liquid extraction column (A.I.Ch.E.) June 144
Liquid-liquid extraction in a wetted-wall tower, Nov. 162.....Nov. 167
Lithium chloride, new source of (A.C.S. convention) .....May 174
Loader, improved (E.N.).....Jan. *104
Lubrication:
Central lubrication system (E.N.) Jan. 104
Lubricant .....Nov. 158
Lubricator, high pressure (E.N.)... Apr. *106
One-pipe lubricator (E.N.).....July *101
Regenerating spent lubricating oils (A) .....Nov. 178
Solvent dewaxing of lubricants flow sheet .....Oct. *106

M

Magnesium:
Cleaning magnesium die castings (A) Sept. 158
Dow Chemical produces magnesium from the sea. S. D. Kirkpatrick Nov. *76
Flow sheet of magnesium from sea water .....Nov. *130
How Europe produces its magnesium. E. V. Pannell.....Jan. *78
Large-scale manufacture of magnesium (ed) .....Mar. 68
Magnesium alloys, strength of (A) Oct. 148
Magnesium chloride .....Jan. 81
Magnesium die castings (A).....Sept. 164
Magnesium fires controlled. A. B. Guise .....June *85
Magnesium situation as we see it today .....Sept. 95
Melting magnesium (A).....May 188
Painting magnesium alloys (A.C.S. convention) .....May 170
Permanent strength of magnesium (A) .....May 187
Production and use of magnesium. H. A. Franke.....Mar. *75
Production of metallic magnesium by the Hansgirg process. S. D. Kirkpatrick .....Sept. *91
Maintenance—Flood precautions to minimize plant losses. G. W. McBride Feb. *132
Management—How Armstrong Cork Co. is preparing for total-defense production. T. R. Olive.....Oct. *74
Manning, Dr. Paul D. V. leaves Chemical & Metallurgical Engineering (ed) Sept. 74
Manometer, direct-reading (E.N.)..Jan. *106
Manufacturing:
Small manufacturer who has studied the next move in defense. J. H. Collins .....Dec. 71
Materials handling:
Iowa ordnance shell-loading plant goes into operation.....Aug. 89
Materials handling equipment in the Chemical Show .....Nov. *115
Unloading logs and conveying them to buildings for fiberboard manufacture. J. A. Lee.....Aug. *87
Unloading tank cars of sulphuric and mixed gases .....Mar. *82
Materials of Construction:
Costs of process equipment and accessories. Harding Bliss (charts)..Dec. *87
Materials for industrial buildings. H. D. Vernam .....May *112
New construction materials in the Chemical Show .....Nov. 113
Planning for "ersatz" (ed).....May 74
Platinum-clad equipment. L. C. Burman .....Mar. *89
Resinoid equipment in wartime. Duncan Campbell .....July *90
Silver offers resistance to many chemicals. Butts & Giacobbe.....Dec. *76
Substituting construction materials Nov. *90
Substitution materials. G. S. Brady July 88
Merix film cleaner.....Aug. 131
Metal spray gun (E.N.).....Aug. 102
Metals:
Normal world production of metals (table) .....Aug. 79
Pickling metals with ferric sulphate Aug. 136
Plating relieves metal shortage. William Blum .....Aug. 78
Porous metal (E.N.).....Sept. *123
Rulings on metals (N).....May 152
Strategic metal outlook (A.I.M.M.E.) Mar. 125
Meters—Densimetry of corrosive gases (A) .....May 188
Laboratory flowmeter (A).....May 187
Methanol—Production of methanol 1938-1940 (table) .....Feb. 102
Methylcellulose adhesives (A).....Dec. 131
Microscope, electron .....Feb. *167; (A) Oct. 144
Middlewest chemical industry report (charts & tables).....Apr. 95
Chemical process industries (table) Apr. 101
Mildew proofing .....Sept. 156
Milk irradiation with ultra-violet light (A) ....July *143; A. Broggini (c) Sept. 147
Mill, colloid (E.N.) .....Apr. *105
Mill, rotary disk (E.N.).....Nov. *125
Mill, stainless ball (E.N.).....May *141
Mills—Vibrating mills (A) .....May 185
Mineral wool from coal wastes (A.C.S. convention) .....May 178
Mineral wool, see also Insulation
Minerals—Location and status of mineral resources in the eleven Western States (table) .....Sept. 84
Mixing:
Air-motor mixer (E.N.).....Apr. *104
Air-powered mixer (E.N.).....Oct. *102
Mixers in the Chemical Show....Nov. *116
Paste mixer (E.N.) .....Apr. *104
Plastics mixer (E.N.).....Apr. *104
Solvent recovery mixer (E.N.)..June *108
Molder, vertical injection (E.N.)....Apr. *105
Molding, injection (A.C.S. convention) May 172
Motors:
Polyphase induction motors (E.N.) Feb. *138
Sleeve bearing motor (E.N.)....Mar. *101
Splashproof motor (E.N.).....July *104
Vertical motor (E.N.).....May *141
Munitions:
Arms, ammunition and explosives plants contracted for (table)..Apr. 97
Army's second chain of munitions plants and expansion of first program plants .....Oct. 115
Canadian explosives plants (A)..Apr. 152
Charlestown, Ind. now has biggest U. S. powder plant. S. D. Kirkpatrick .....Apr. *72
Export control of technical data..Nov. 102
Iowa ordnance shell-loading plant goes into operation.....Aug. 89
Kankakee Ordnance Works and Elwood Ordnance Plant construction in Illinois. S. D. Kirkpatrick..May *125
Making smokeless powder at Radford, Va. .....Apr. *103
Munitions plant program makes further progress (N) .....Feb. 149
Program of construction for munition plants .....July 117
Revised table of the Army's munitions plants corrected to Jan. 10, 1941 .....Jan. 97
Munitions see also Explosives

N

National defense, see War
National Fire Protection Association meets in Toronto .....**July 134**
Natural gas—Liquefying natural gas for peak load supply. Miller & Clark Jan. *74
Liquefying natural gas for peak load supply-progress report. J. A. Clark Aug. *90
Planning energy supply for process industry (charts) .....Mar. 92
Processing fuels for industry (charts) Mar. 96
Neoprene, properties (A).....Sept. 160
Neoprene—Trade deliveries will be allocated (N) .....Apr. 118
Nickel plate on iron and copper (A) Aug. 142
Nicotine—New industries from nicotine Oct. 138
Nitrocellulose—Alcohol content increased (N) .....Jan. 115
Nitrogen and nitrates—Consumption, exports and imports of fertilizer in U. S. 1939-40 (tables).....Feb. 94
(tables) .....Feb. 64
Nitrogen chemical shortage.....Nov. 98
Planning for scarcity (ed).....Oct. 72
Nitrogen oxide recovery (A).....Sept. 173
Nomographic chart for determining fluid flow rate through thin plate orifice. C. J. Schilling (P.N.).....Aug. *91
Notol (E.N.) .....Jan. 105
Nozzle, spray (E.N.).....Jan. *104
Nylon thread .....June 142

O

Office of Scientific Research & Development (ed) .....July 70
Oils and Fats:
Factory consumption of primary animal and vegetable fats and oils, 1940 (table) .....Apr. 120
Grease and tallow — Production in 1939-37 .....Feb. 114
New fatty acid derivatives. A. W. Ralston .....Feb. *126
Nonflammable transformer oil (A).. Dec. 131
Planning energy supply for process industry (charts) .....Mar. 92
Production of oils and fats 1912-1940 Feb. 107
Production of oils and fats in 1939-37 Feb. 113
Research for increasing supply of drying oils (N).....July 115
Oils and Fats—Continued:
Soluble drilling oils for plastics.Apr. 151
Status of drying oils (A.C.S. convention) .....May 175
Synthetic oil in Germany.....July 134
Oleoresin upgrading. J. O. Reed (tables, charts) .....Dec. *68
Organic chemicals—New organic chemicals .....Oct. 130
Opportunities in the synthetic organic chemical industry (report)....Oct. *93
Oxygen recorder (E.N.).....June *107

P

Packaging—Equipment in the Chemical Show .....Nov. 117
Packed tower performance at high liquor rates .....Nov. 163
Packed towers, flooding velocities in..Nov. 167
Packer, hydraulic (E.N.).....Oct. *102
Packing reaction towers (A).....Aug. 145
Paints.
Materials for protective coatings industry (A) .....Dec. 128
Production of paints, pigments and varnishes in 1939-37.....Feb. 114
Protective paint .....June 141
Reduction proposed in number of paints and colors (N).....Aug. 113
Sublimed lead oxides (A).....Oct. 144
Synthetic mill white.....Sept. 156
Washable protective covering....Oct. 130
Paper machine load adjustment (A).Jan. 136
Patents—International exchange of patents (ed) .....Jan. 73
License required for patents filed in foreign countries (N).....Sept. 135
Perfumes—Opportunities in the synthetic organic chemical industry report Oct. 93
Permanganate from ferro-manganese..Oct. 133
Pesticides, new organic.....Oct. 134
Petroleum:
Anticipated changes in petroleum products (A) .....Dec. 128
Aromatics, gas and coke from heavy petroleum residues. E. L. Hall..Sept. *100
Declaration of peace between the chemurgists and the petroleum industry (ed) .....June 77
Engineering education in petroleum (A.I.M.M.E. meeting).....Mar. 123
Hydroforming, a new refining process. Smith & Moore.....Apr. *77
Industrial organic chemicals derived from petroleum refinery and natural gases (chart) .....Oct. 97
National defense and petroleum (ed) Apr. 71
New continuous catalytic cracking process (N) .....Mar. 111
Petroleum refining in 1939-37.....Feb. 115
Record demand for petroleum (A).. Dec. 127
Solvent dewaxing of lubricants flow sheet .....Oct. *106
Substitutes for petroleum surveyed Mar. 123
Who can declare war? (ed).....May 74
Whose stock-piles are we building? (ed) .....Apr. 70
pH indicator (E.N.) .....Oct. *101
Phenol developments in 1940.....Feb. 104
Phenothiazine, substitute for insecticide (A) .....Sept. 166
Philadelphia Quartz Co. to celebrate 110th anniversary (ed) .....July 71
Phosphating metal surfaces (A).....June 159
Phosphatizing baths (A) .....Mar. 134
Phosphor-bronzes (A) .....May 182
Phosporic acid—Alkyl esters of phosphoric acid .....Nov. 171
Photoelectric spectrophotometer (E.N.) Nov. *128
Pickling inhibitors (A) .....May 186
Piezoelectric measurements .....Apr. 151
Pigments, new .....June 138
Pillow blocks (E.N.).....Dec. *100
Pipes—Costs of process equipment and accessories. Harding Bliss (charts) Dec. *87
Plant hormones applications .....Oct. 135
Plant layout—1941 aspects of plant design and process layout. Roland Woodward .....May *90
Plant Location:
Bibliography of plant location....May 121
Choosing plant locality and site..May 87
Plant location data (table) .....May 86
Plant location with an eye to the future (maps) .....May 80
Plant Notebook:
Apparatus to determine rate of condensation of alcohol vapors. Othmer & White (P.N.) .....July *114
Aqua ammonia solutions—their freezing points and freeze-resistant applications. E. R. Woodward..Apr. *115
Chart for calculating roots and powers of whole and fractional numbers. M. G. Mastin.....July 113
Filter wash control.....Aug. 92
New nomograph solves flow equations for thin plate orifices. C. J. Schilling .....Aug. *91
Outline of a nine-point program for design of multi-component fractionating systems. Scott Crosley Oct. *92
Plastic insulation tip. J. O. G. Gibbons .....July 113
Positive cut-off bin gate. C. A. Lee Aug. *92
Special pumps efficient mixers for sludges containing fibers and solids. V. J. Mill .....June *119
Specific heat chart for combustion gases aids solution of heating problems. D. S. Davis.....June 120

NOTES—(A) Abstract; (c) Comment; (ed) Editorial; (E.N.) Equipment News; * Illustrated; (N) News; (P.N.) Plant Notebook.

Plant Notebook—Continued:
Static elimination ....July 114
Steam engine performance shows savings in power costs for process plants. F. J. Vonachen....May 138
Timesaving ideas for engineers. C. A. Lee ....Feb. *137
Plants:
Building fabrication and comparative costs. Rounds & Kiernan....May *104
Defense considerations in process plant design ....May 110
Design and construction of process plants (report) ....May *75
Industrial Tape Corp. opens a modern plant ....June *95
Kankakee Ordnance Works and Elwood Ordnance plant construction in Illinois. S. D. Kirkpatrick..May *125
Materials for the building. H. D. Vernam ....May *112
Munition plants to be constructed July 117
New plant construction or expansion in the Southern process industries (table) ....July 100
Preconstruction work. S. B. Lincoln May *95
Prefabricated and standard plant buildings ....May *102
Problems in plant expansion (charts) May 76
So you're going to expand?....May 73
Structure trends in chemical and process plants. H. K. Ferguson....May *97
Unhoused and semi-housed types of plant construction save money. Z. G. Deutsch ....May *100
Windowless fluorescent lamp at Fairmont, W. Va. begins operations. Aug. *82
Wood frame buildings. F. J. Champion ....May *106
Plastic Materials Manufacturers' Assn. formed (N) ....May 151
Plastics:
Big chance for plastics in the national defense (ed) ....Mar. 68
Cellulose plastics and synthetic resins (chart) ....May 131
Hardening of phenolic resins (A) Dec. 132
How much can plastics production be expanded? Batters & Lee....May *128
Oilproof plastics (A) ....June 157
Pacific Coast sources, raw materials and chemicals for rayon and plastic production (chart) ....Sept. 83
Phenolic resin plant at Springfield, Mass. J. R. Callaham ....June *88
Plastic insulation tip. J. O. G. Gibbons (P.N.) ....July 113
Plastic pellets for molding (A)..Mar. 138
Production and sales of plastics in 1941 (chart & table) ....Feb. 98
Production of plastic materials in 1939-37 ....Feb. 115
Resinous ion-exchangers for purifying water. (A.C.S. convention)..May 172
Solvent type plasticizer ....May 160
Substituting construction materials Nov. *90
Tape-reinforced plastic packing (E.N.) Feb. *138
Thermoplastic molding powder from agricultural wastes (A.I.Ch.E.) June 150
Urea resin plant design. Brothman & Weber ....Dec. *73
Plating:
Cyanide plating baths (Electrochemical Society) ....Apr. 137
Indium plating (Electrochemical Society ....Apr. 136
Metal shortages may be relieved by plating. William Blum ....Aug. 78
Substituting construction materials .. Nov. *90
Platinum—Phosphorus corrosion of platinum ware (A) ....Mar. 134
Plywood for planes (A.C.S. convention) May 177
Plywood—Manufacture of resin for making plywood; urea resin plant. Brothman & Weber....Dec. *73
Porcelain as a metal substitute (A)..Aug. 143
Porcelain enamel frits....Aug. 130
Potash:
Chemicals from California's desert. P. D. V. Manning ....Sept. *96
Consumption, exports and imports of fertilizers in U. S. 1939-40 (tables) Feb. 94
Refining operations in New Mexico's newest potash plant. A. H. Hubbell June *78
Sulphate of potash produced from langbeinite. S. D. Kirkpatrick..Jan. *77
Potato starch technology modernized in Maine plant. G. J. Muller....Mar. *78
Potato starch production to start in British Columbia ....June 124
Sweet potato starch....Sept. 165
Potentiometer pyrometer (E.N.)....Aug. *104
Powder plant, see Munitions
Power:
Byproduct power in process industries (chart) ....Mar. 94
Current power situation in the West (map & tables)....Sept. 80
Post-war power abundance (ed). Aug. 72
Power supply in the South (charts & table) ....July 94
Process steam and power for process industries report ....Aug. *93
Steam engine performance shows savings in power costs for process plants. F. J. Vonachen (P.N.)..May 138
Steps to steam and power profits. D. M. Myers ....Oct. *80
Power transmission equipment in the Chemical Show ....Nov. *113
Press, automatic molding (E.N.)....Jan. 103
Press closer (E.N.)....Apr. *106
Price Administration chemical section (N) Oct. 113
Prices—Indexes of wholesale prices, 1913-1941 chemicals & drugs (chart).Aug. 120
Stability of prices for chemicals threatened by transactions in the resale market ....Aug. 120
Priorities—Preference ratings are up to you. W. B. Spooner, Jr.....Oct. 86
Priority system ....Mar. 113
Supply problems and priorities (ed) Oct. 71
Priorities see also War
Production—How to ease equipment bottlenecks ....Nov. 88
Production trends in the chemical industry (chart & table) ....Feb. 84
Protectives and preservatives for materials ....Oct. 130
Preservative for floors....Oct. 130
Preservative for wood and fabrics June 142
Pulp and Paper:
Alcohol from waste sulphite liquor (A) Dec. 133
Chemical control of slime in paper mill water ....Nov. 172
Circulating sulphite liquor (A)..June 161
Corrosion cracks in sulphite cookers (A) ....Mar. 137
Dissolving pulp in wartime. A. D. Styles ....Dec. *80
Filler losses in cigaret paper making (A) ....Sept. 174
Paper and paperboard production in 1939-37 ....Feb. 115
Paper furnish ....Nov. 158
Pulp digesters (A) ....Sept. 172
Pulp grinder problems (A)....Feb. 174
Pulp production in 1939-37....Feb. 116
Shortage of sulphite pulp indicated by survey (N) ....Jan. 115
Sulphite pulp flow sheet....Aug. *106
T.A.P.P.I. meets in New York (N) Feb. 163
Two-stage pulp digestion (A)....June 156
Western wastes as materials for alcohol production. W. C. McIndoe Sept. 111
Pulper, small capacity (E.N.)....Sept. *125
Pumps:
Acid pump (E.N.)....Oct. *103
Centrifugal pump (E.N.)....July *102
Close-coupled pump (E.N.)....Jan. 103
Costs of process equipment and accessories. Harding Bliss (charts) Dec. *87
Duplex pumping unit (E.N.)....Dec. *100
Fractionating pump (E.N.)....May *141
Glass pump (E.N.)....June *107
New equipment at the Chemical Show ....Nov. *117
Proportioning pump (E.N.)....Apr. *105
May *140
Pump drive (E.N.)....Feb. *138
Rotary industrial pump (E.N.)..Aug. 101
Special pumps efficient mixers for sludges containing fibers and solids. V. J. Mill (P.N.)....June *119
Submerged sump pump (E.N.)..July *101
Turbine pump (E.N.)....Nov. *126
Pyroflex (E.N.)....Jan. 105
Pyrometer indicator (E.N.)....Nov. *127
Pyrometer, radiation (E.N.)....Apr. *106

R

Raw materials—Location of chemical raw materials (map & table)....May 83
Raw materials for defense (lists).Nov. 94
Raw materials and natural resources in Western States (chart & table) Sept. 82
Rayon:
Cotton linters as a source of chemical cellulose. G. D. Bieber....Jan. *92
Flow sheet for chemical cotton production ....Apr. *108
Pacific Coast sources, raw materials and chemicals for rayon and plastic production (chart) ....Sept. 83
Production of rayon in 1939-37...Feb. 116
Production and imports of rayon 1921-40 ....Feb. 106
Purifying cotton linters. J. A. Lee Apr. *90
Refrigeration in rayon manufacture Apr. 149
Spinning acetate silk (A)....June 159
Vinyon now entering varied filter applications W. C.
Reaction equipment in the Chemical Show Nov. *118
Recorder, dissolved oxygen (E.N.)..Mar. *99
Rectifier—Ignitron mercury arc rectifiers in aluminum production. Cox & Bohn ....Sept. *108
Refining:
Design of multi-component fractionating systems. Scott Crosley (P.N.) Oct. *92
Flow sheet of sulphuric acid from refinery sludge ....May *144
Fuel economy in refineries discussed at American Petroleum Institute June 150
Hydroforming, a new refining process. Smith & Moore ....Apr. *77
Refiner, tilted (E.N.)....Apr. *105
New Mexico's newest potash plant. A. H. Hubbell ....June *78
Solvent dewaxing of lubricants flow sheet ....Oct. *106
Upgrading oleoresin by a new process. J. O. Reed (tables, charts)..Dec. *68
Refluxing equipment used in urea plant. Brothman & Weber....Dec. *73
Refractories—Calcium metaphosphate refractories (Electrochemical Society) Apr. 143
Production of refractories in 1939-37 Feb. 116
Refrigeration—Aqua ammonia solutions—their freezing points and freeze-resistant applications. E. R. Woodward (P.N.) ....Apr. *115
New equipment in the Chemical Show Nov. *120
Rayon manufacture requires refrigeration ....Apr. 149
Regulator, temperature (E.N.)....May *141
Relay, time (E.N.)....Dec. *102
Research:
Budgets for research are the highest in chemical companies. R. L. Lund (chart) ....July 76
The chemical engineer in industrial research. S. D. Kirkpatrick (charts) July *72
Pilot plant to make motor fuels from farm products (N) ....Sept. 139
Research, the resource (ed)....July 69
World research activities (A)..Sept. 161
Resin:
Air dry finish, Amron....Aug. 131
Design of a urea resin plant. Brothman & Weber....Dec. *73
Hardening of phenolic resins (A).Dec. 132
Liquid resins that are solvents, plasticizers ....June 142
Outlook of resin materials (A)...Dec. 127
Phenolic resin plant at Springfield, Mass. J. R. Callaham....June *88
Production and sales of plastics in 1941 (chart & table) ....Feb. 98
Products of aromatic sulphonamides and formaldehyde (table)....May 159
Resin derived from gum or wood resin ....Nov. 158
Resin, solvent soluble....Sept. 157
Resinold equipment in wartime. Duncan Campbell ....July *90
Synthetic resins ....Oct. 97
Rivets, explosive ....Sept. 156, 158
Roll grab (E.N.)....Dec. *102
Rosin — Production of gum turpentine and rosin in 1939-37....Feb. 114
Production of rosin and turpentine in 1940 ....Feb. 111
Rubber:
Comparative properties of rubbers (table) ....July 138
Factices as compounding materials (A) ....Oct. 148
Oxidation of unvulcanized rubber (Electrochemical Society) ....Apr. 139
Present status of synthetic rubber Oct. 139
Production of rubber in 1939-37..Feb. 116
Reclaiming rubber flow sheet...June *112
Status of rubber chemicals....Nov. 168
Substitution materials. G. S. Brady July 88
Synthetic rubbers..July 138; Oct. 97; Nov. 170
Synthetic rubber developments in 1940 ....Feb. 103
Synthetic rubber in machine design (A) ....July 140; July 142
United States rubber monopoly (ed) ....July 70
Russia—Soviet defense is served by chemical industry. Karl Falk....Aug. *74

S

Safety:
Accident rates in chemical plants rose in 1940 (N)....Aug. 116
German chemical industry plant accidents increase ....July 118
Hexanitromannite used in manufacturing detonators for safety. G. F. Rolland ....June *96
New equipment at the Chemical Show Nov. *121
Small plant's defense against accidents. J. T. Morris....Oct. *79
Speed with safety (ed)....Jan. 72
Unloading tank cars of sulphuric and mixed acids ....Mar. *82
Sand, cleaning ....June 154
Scale, automatic coal (E.N.)....Mar. *99
Scales, platform (E.N.)....Jan. *106
Screen, roto-flow (E.N.)....Dec. *99
Screens—Vibrating screen (E.N.)...May *139
Sea weed utilization, Alaska. F. J. Weiss Sept. 119
Separation — Dry magnetic separator (E.N.) ....June 109
Induction separator (E.N.)....Nov. *127
New separators at the Chemical Show ....Nov. 121
Sewage settling in basins (A)....June 156
Sewage treatment — Activated carbon from sewage sludge (A)....Feb. 174
Flash drying of sludge, flow sheet Jan. *108
Ships, shortage of, for imports (ed)..June 76
Shovel, power (E.N.)....May *139
Silver—As a substitute metal (A)...Sept. 158
Silver plating (A)....Feb. 175
Silver offers resistance to many chemicals. Butts & Giacobbe....Dec. *76
Substituting construction materials.. Nov. *90
Skin protective ....June 141
Soap—New method of making soap..Oct. 136
Production of soap and glycerine in 1939-37 ....Feb. 116
Soda ash—Chemicals from California's desert. P. D. V. Manning....Sept. *96
Possibilities for a Wyoming chemical industry ....Sept. *112
Production and distribution of soda ash in U. S. (charts & table)...Feb. 92

NOTES—(A) Abstract; (c) Comment; (ed) Editorial; (E.N.) Equipment News; * Illustrated; (N) News; (P.N.) Plant Notebook.

Sodium chloride—Chemicals from California's desert. P. D. V. Manning ....Sept. *96
Study of sodium chlorate cell operated with graphite anodes (Electrochemical Society) ....Apr. 135
Sodium sulphate—Chemicals from California's desert. P. D. V. Manning Sept. *96
Submerged combustion as applied to sodium sulphate production. Douglass & Anderson ....May *135
Soil chemistry (A)....Nov. 176
Solder—Soft solder without tin....Apr. 147
Solvent stripper for vacuum pumps (E.N.) Oct. *103
Solvents—Soybean oil extraction. W. H. Goss, Apr. *80 (A.I.Ch.E.)....June 148
What soybean processing costs. C. W. Bilbe ....Apr. *85
Sound absorber (A)....July 142
Southern chemical progress report (charts & tables) ....July 93
Soybeans:
Expansion in soybean processing (ed) Apr. 71
Flow sheet of soybean oil extraction with normal hexane....Sept. *128
Growth of the soybean industry..Mar. 127
Paints, varnishes and plastics from soybeans (A) ....Sept. 165
Power requirements for soybean extraction C. W. Bilbe (c)....Nov. 151
Solvent extraction of soybean oil (A.I.Ch.E.) ....June 148
Solvent extraction of soybeans. W. H. Gross ....Apr. *80
What soybean processing costs. C. W. Bilbe ....Apr. *85
Spectroscopic examination of metal inclusions (A) ....July 145
Speed reducer (E.N.) ....Feb. *140
Spray towers for distilling and condensing (A) ....Oct. 147
Stacker, drum-tilting (E.N.)....June *108
Stacker, spring-balanced (E.N.)....Nov. *126
Standardization—Toxic substances receive new standards (N) ....May 154
Starch—Potato starch production to start in British Columbia....June 124
Potato starch technology modernized in Maine. C. J. Muller....Mar. *78
Starch from sweet potatoes (A)..Sept. 165
Starter, corrosion-proof (E.N.)....Sept. *126
Starter, solenoid (E.N.)....Aug. *103
Static elimination (E.N.) ....July 114
Statistical analysis of plant problems (A) Sept. 172
Steam power see Power
Steam trap, combination (E.N.)....Jan. 103
High pressure (E.N.)....July *102
Partitioned (A) ....Feb. 176
Storage in the tropics....Apr. 148
Storing gas in liquefied form—progress report. J. A. Clark....Aug. *90
Storing gas in liquefied form to meet peak load supply. Miller & Clark..Jan. *74
Stuffing box (E.N.)....Jan. *103
Substitution materials see Materials of Construction
Sugar:
Cane sugar refining in 1939-37....Feb. 116
Filter aids in sugar refining....Oct. 141
Making cane sugar for refining. G. L. Pace ....July *77
Production of beet sugar in 1939-37 Feb. 116
Raw sugar from cane flow sheet..July *106
Sulphaguanidine ....July 133
Sulphite tester (E.N.)....Sept. 124
Sulphur—Sulphur mining at Newgulf flow sheet ....Mar. *104
Supplies of sulphur in the United States. W. W. Duecker....Mar. *70
Sulphur dioxide—Reactions in liquid sulphur dioxide (A)....Mar. 134
Sulphuric Acid:
Concentrating sulphuric acid....Apr. 147
Distribution of sulphuric acid 1940 (chart) ....Feb. 91
Flow sheet of sulphuric acid from refinery sludge ....May *144
Mills-Packard chambers improved for sulphuric acid production. A. M. Fairlie ....Jan. *90
Production of sulphuric acid (chart & table) ....Feb. 91
Unloading tank cars of sulphuric and mixed acids ....Mar. *82
Switch, improved mercury (E.N.)...Dec. *99
Synthetic chemical plants established by Germany in Europe....Dec. 116
Synthetic organic chemical industry in 1940 ....Feb. *103
Synthetic organic chemical industry opportunities report ....Oct. *93

T

Tanks:
Calibration of horizontal cylindrical tanks with dished ends. C. A. Lee (P.N.) ....Feb. *137
Costs of process equipment and accessories. Harding Bliss (charts).. Dec. *87
Non-metallic material for self-sealing tanks ....Nov. 158
Tank cars for carbon dioxide....June 146
Unloading tank cars of sulphuric and mixed acids ....Mar. *82
Tanning chemicals (A)....Dec. 128
Technical Association of the Pulp & Paper Industry meets in New York (N) ....Feb. 163
Tennessee Valley Authority—Authority given to expand phosphoric-acid facilities (ed) ....Apr. 70
Textile chemicals—defense status (A).. Dec. 127
Textile fiber absorbent ....Sept. 157
Thermoelastometer, recording (A)...Nov. 175
Thermometry in swift gas currents..Apr. 147
Thickeners—costs of process equipment and accessories. Harding Bliss (charts) ....Dec. *87
Timer, moistureproof (E.N.)....Jan. *104
Tipper, drum (E.N.)....Mar. *101
Tire, truck, gives more mileage per pound of rubber ....Sept. 156
Tires, Conductor industrial (E.N.)...Sept. *124
Tobacco—Fermentation of cigar leaf (A) Mar. 136
Toluol—Developments in 1940....Feb. 103
Developments in processing....Nov. 98
Trade associations and technical societies (list) ....Feb. 135
Trailer, fire-fighting (E.N.)....Mar. *100
Transformer, Hipersil (E.N.)....July *102
Transformers with noninflammable oil (A) Dec. 131
Transmitter, remote (E.N.) ....Jan. *105
Transportation — Watercarrier regulation for chemicals (n) ....Jan. 115
Trucks—Hand lift truck (E.N.)....May *140
Lift truck (E.N.)....Jan. *103
Lifting fork truck (E.N.)....Feb. *138
Wrench truck (E.N.)....Dec. *99
Trusts and anti-trusts (ed)....Feb. 76
Tungsten—Aluminothermic alloy production (A) ....May 183
Turpentine—Production of gum turpentine and rosin in 1939-37....Feb. 114
Production of turpentine and rosin in 1940 ....Feb. 111
Upgrading oleoresin by a new process. J. C. Reed (tables, charts).. Dec. *68

U

Ultra-violet light for milk irradiation (A) ....July *143; A. Broggini (c) Sept. 147
Unwinder, hydraulic-brake (E.N.)...Nov. *125

V

Valves:
Costs of process equipment and accessories. Harding Bliss (charts) Dec. *87
Cylindrical plug valve (E.N.)....Aug. *102
Drum filling valve (E.N.)....May *142
Gas measuring valve (E.N.)....July *103
Gastight valve (A)....June *158
Positioner for valves (E.N.)....July *104
Pressure reducing valve (E.N.)..Jan. *105
Solenoid valve (E.N.)....May *140
Vapor scrubbing system (E.N.)....Nov. *128
Vinyon now entering varied filter applications. W. G. Luttge....June *98
Viscometer, strip (A)....Aug. *144
Vitamins—Fortified foods (A.C.S. convention) ....May 179

W

War:
Adapting processes to defense needs Nov. 97
Advisory staff to study defense chemical needs (N)....Apr. 118
All out on all fronts (ed.)....Dec. 64
Anti-trust suits tie in with production bottlenecks (N) ....Feb. 149
Better be ready for the emergency (ed) ....June 76
Calcium-silicon placed on priority list (N) ....Aug. 113
Can process plant shops help? (ed) Apr. 70
Canadian explosives plants....Apr. 152
Chart showing office of production management ....Feb. 151
Chemical man-power for national defense (report) (charts & tables) Jan. 96
Chemical warfare ....Nov. 169
Closer Canadian cooperation (ed)..July 71
Closer cooperation needed between OPM and OPACS (ed) ....Aug. 72
Companies eligible to amortize plant expansions (N) ....Feb. 154
Conditioning bombproof underground spaces for shelters and factories. Edward Ledoux ....June *82
Correction ....Aug. *153
Conquered territories contribute much to payment of Germany's war bill Apr. 122
Contractors should seek subcontractor's aid (ed)....Feb. 76
Defense considerations in process plant design ....May 110
Defense industrial facilities, value of industrial facilities financed with public and private funds, by type of product and source of funds..Nov. 103
Defense status of chemicals (A.C.S. convention) ....May 169
Economics of defense (ed)....Feb. 75
Engineering defense training....Aug. 133
Engineering defense training program (table) ....Jan. 101
Engineers Defense Board organized (ed) ....Oct. 73; (n) Oct. 113
For a moratorium on controversies (ed) ....Aug. 71
Forgotten man in defense—the small manufacturer who has studied the next move in defense. J. H. Collins Dec. 71
German air raid defense of factories. Curt Wachtel ....Apr. *92
How Armstrong Cork Co. is preparing for total-defense production. T. R. Olive ....Oct. *74
How the Middle West is helping the national defense program (charts & tables) ....Apr. 95
War—Continued:
How to ease equipment bottlenecks Nov. 88
Kankakee Ordnance Works and Elwood Ordnance Plant construction in Illinois. S. D. Kirkpatrick..May *125
Let's turn on the steam . . . and get out the goods. W. S. Knudson, D. M. Nelson ....Nov. *86
Making explosives for World War II. Jules Bebie ....Oct. *76
Munition plants to be constructed..July 117
New defense industries and plants under construction or projected for Pacific Northwest (map)....Sept. 77
Our Ministry of Supply (ed)....Sept. 74
Our part in civilian defense (ed)..Dec. 63
Personnel setup of chemical sections of OPM and OPA (N)....Sept. 135
Preference ratings are up to you. W. B. Spooner, Jr. ....Oct. 86
Preparation protects shoes against mustard gas (N) ....July 115
Price Administration chemical section (N) ....Oct. 113
Principal national defense industries recommended by Bonneville Power Administration (table) ....Sept. 78
Priorities and supply (ed)....Oct. 71
Priorities may have to be applied (ed) Mar. 68
Priority system ....Mar. 113
Protecting industrial plants from magnesium fires. A. B. Guise..June *85
Raw materials for defense (lists)..Nov. 94
Regional advisers on engineering defense training ....Jan. 99
Resinoid equipment in wartime. Duncan Campbell ....July *90
Rubber monopoly by government (ed) July 70
Significance of ammonia in the national defense. E. R. Woodward Feb. *117
Soviet defense is served by chemical industry. Karl Falk ....Aug. *74
Strategic materials found in Alaska. F. J. Weiss....Sept. *116
Substituting construction materials Nov. *90
Substitution possibilities and materials research. G. S. Brady....July 88
Technical data under export control. Capt. W. E. Elliott....Nov. 102
Textile chemicals—defense status (A) Dec. 127
Washing compounds affect aluminum (A) Oct. 146
Washrooms, see Labor
Waste—Waste sulphite liquor fertilizer Oct. 135
Wastes as materials for alcohol production. W. C. McIndoe....Sept. 111
Waste disposal—Activated sludge treatment of soybean wastes (A)..June 160
Flow sheet of sulphuric acid from waste oil refinery sludge....May *144
Water control, boiler (E.N.)....Nov. *128
Waterproof fabric ....June 140
Waterproofing compound ....Nov. 158
Water Treatment:
Base exchange water softeners (A) Aug. 142
Boiler water comparator (E.N.)..June *109
Calco's new waste treatment plant. C. E. Mensing & others....Mar. *84
Chemical treatment of water....Aug. 138
Chemicals from pickling liquor and copperas waste ....Nov. 166
Equipment of water treatment (E.N.) Jan. 104
New water treatment equipment at the Chemical Show....Nov. 124
Purifying water by adsorption (A) Sept. 174
Report on water treatment for process industries ....June 99
Threshold treatment of water (A) Sept. 163
Tray deaerator for boiler feed water ....June *148
Wax, synthetic ....Oct. 130
Waxes, additive for ....Sept. 156
Welding—Trailer, welder (E.N.)....Sept. *124
Welder protection (E.N.)....Dec. *102
Welding rings (E.N.)....July *103
Western industry (ed)....Sept. 72
Western products and byproducts..Sept. *122
Western trends and influences in the chemical process industries....Sept. *75
Wetting agent ....July 133
Whiteprint machine (E.N.)....Dec. *100
Wire—Heat effects in copper wire (A) May 186
Wood:
Continuous wood hydrolysis....Oct. 140
Production of charcoal and wood chemicals in 1940....Feb. 102
Resin-treated compressed wood discussed at A.I.Ch.E. ....June 144
Wood distillation in 1939-37....Feb. 116
Wood waste used for fuel (A)...Dec. 131
Wool, felting capacity of (A)....Aug. 147
Wyoming chemical industry as a possibility ....Sept. *112

X

X-rays—Defect detectors (A)....July 140
Use of x-rays in metallurgy (A).Oct. 145
X-ray analysis in industry (A)..Sept. 170
X-ray machine for welding inspection (E.N.) ....Sept. *122

Y

Yeast—Losses in yeast drying (A)...Mar. 139

Z

Zinc oxide production flow sheet....Feb. *142

NOTES—(A) Abstract; (c) Comment; (ed) Editorial; (E.N.) Equipment News; * Illustrated; (N) News; (P.N.) Plant Notebook.

ANDERSON, C. O. & E. W. Douglass. Submerged combustion as applied to sodium sulphate production May *135

BARNEBLE, A. J. Filtration of granular materials ..... July *80
Batters, H. M. & J. A. Lee. How much can plastics production be expanded? ..... May *128
Bean, H. C. & others. Calco's new waste treatment plant ..... Mar. *84
Bebie, Jules. Making explosives for World War II ..... Oct. *76
Bieber, George D. Cotton linters as a source of chemical cellulose. Jan. *92
Bilbe, C. W. Power requirement for soybean extraction ..... Nov. 151
What soybean processing costs... Apr. *85
Bliss, Harding. Costs of process equipment and accessories..... Dec. *87
Blum, William. Plating relieves metal shortages ..... Aug. 78
Bohn, D. I. & J. H. Cox. Power rectification in aluminum production Sept. *108
Brady, George S. Substitution possibilities and materials research ..... July 88
Broggini, A. American practice..... Sept. 147
Brothman, A. & A. P. Weber. Design of a urea resin plant..... Dec. *73
Burman, Lawrence C. Platinum-clad equipment ..... Mar. *89
Butts, Allison & John Giacobbe. Silver offers resistance to many chemicals ..... Dec. *76
Byman, Leonard & D. B. Keyes. Plate efficiency study in ethyl alcohol distillation ..... July *85

CALLAHAM, J. R. Modern plant makes phenolic resins at Springfield. June *88
Campbell, Duncan. Resinold equipment in wartime ..... July *90
Cassell, R. L. & others. Calco's new waste treatment plant..... Mar. *84
Champion, F. J. Wood frame buildings May *106
Clark, John A. Progress report on liquefying city natural gas supply Aug. *90
Clark, J. A. & R. W. Miller. Liquefying natural gas for peak load supply ..... Jan. *74
Collins, James H. Forgotten man in defense ..... Dec. 71
Cox, J. H. & D. I. Bohn. Power rectification in aluminum production Sept. *108
Crosley, Scott. Outline of a nine-point program for design of multicomponent fractionating system Oct. *92

DAVIS, Dale S. Specific heat chart for combustion gases aids solution of heating problems ..... June 120
Deutsch, Z. G. Unhoused plants a means of cost reduction ..... May *100
Doherty, Robert E. Engineers' Council for Professional Development looks ahead ..... Aug. *85
Douglass, E. W. & C. O. Anderson. Submerged combustion as applied to sodium sulphate production. May *135
Dow, Willard H. & A. H. White. Climaxing 50 years of chemical engineering pioneering ..... Dec. *66
Duecker, W. W. Sulphur and national defense ..... Mar. *70

ELLIOTT, Capt. W. E. Technical data under export control..... Nov. 102

FABRICANT, Solomon. Chemical industries: 1899-1937..... Feb. *130
Fairlie, Andrew M. Improvements introduced in Mills-Packard chambers ..... Jan. *90
Falk, Karl. Chemical industry serves Soviet defense ..... Aug. *74
German ammonium nitrate ..... Feb. 120
Ferguson, Harold K. Structure trends in chemical and process plants. May *97
Franke, Herbert A. Magnesium: its production and use ..... Mar. *75

GIACOBBE, John & Allison Butts. Silver resistance to many chemicals.. Dec. *76
Gibbons, J. O. G. Plastic insulation tip. July 113
Goss, W. H. Modern practice in solvent extraction ..... Apr. *80
Greiner, Ward. Question..... July 124
Guise, Arthur B. Protecting industrial plants from magnesium fires. June *85

HALL, E. L. Aromatics, gas and coke from heavy petroleum residues Sept. *100
Hubbell, A. H. Refining operations in New Mexico's newest potash plant June *78

KEYES, D. B. & Leonard Byman. Plate efficiency study in ethyl alcohol distillation ..... July *86
Kiernan, Joseph T. & H. P. Rounds. Building fabrication and comparative costs *104
King, V. L. & others. Calco's new waste treatment plant ..... Mar. *84
Kirkpatrick, Sidney D. The chemical engineer in industrial research. July 72
From farmlands to TNT and munitions works ..... May *125
Magnesium by the Hansgirg process Sept. *91
Magnesium from the sea..... Nov. *76
Midwest builds biggest U. S. powder plant ..... Apr. *72
Sulphate of potash produced from Langbeinite ..... Jan. *77
Knudsen, William S. Let's turn on the steam ..... Nov. *86

LEDOUX, Edward. Conditioning bombproof underground spaces for shelters and factories..... June *82
Stratification of gases in kilns and dryers ..... pt. 1, Oct. *83
Lee, Chesman A. Positive cut-off bin gate Aug. *92
Calibrating cylindrical tanks... Feb. *137
Lee, James A. Mobile's modern fiberboard mill ..... Aug. *87
Purifying cotton linters ..... Apr. *90
Lee, James A. & H. M. Batters. How much can plastics production be expanded ..... May *128
Lincoln, S. B. How to turn a cornfield into a factory ..... May *95
Lund, Robert L. Research budgets highest in chemical companies... July *76
Luttge, William G. Vinyon now entering varied filter applications June *98

MANNING, Paul D. V. Chemicals from California's desert ..... Sept. *96
Products from diatoms..... Sept. *114
Marden, J. W. Chemicals in fluorescent lamps ..... Aug. *80
Mastin, M. G. Chart facilitates calculation of roots and powers of whole and fractional numbers..... July *113
Maynard, F. W. Personnel facilities. May *108
McBride, Gordon W. Planning flood precautions to minimize plant losses Feb. *132
McIndoe, William C. Western wastes as materials for alcohol production Sept. 111
Meigs, Douglas. Explosion: unit operation of the process industries Feb. *122
Mensing, C. E. & others. Calco's new waste treatment plant ..... Mar. *84
Mill, Victor J. Special pumps efficient mixers for sludges containing fibers and solids..... June *119
Miller, R. W. & J. A. Clark. Liquefying natural gas for peak load supply Jan. *74
Moore, L. W. & D. J. Smith. Hydroforming a new refining process.... Apr. *77
Morris, J. T. A small plant's defense against accidents ..... Oct. 79
Muller, George J. Potato starch technology modernized ..... Mar. *78
Myers, David Moffat. Steps to steam and power profits ..... Oct. *80

NELSON, Donald M. . . . And get out the goods ..... Nov. *87

OLIVE, Theodore R. How a peace-time industry is preparing for total-defense production ..... Oct. *74
Othmer, Donald F. Azeotropic distillation for dehydrating acetic acid June *91
Othmer, D. F. & R. E. White. New apparatus determines heat transfer coefficients for condensing vapors of various alcohols.. July *114

PACE, G. L. Making cane sugar for refining ..... July *77
Pannell, Ernest V. How Europe produces its magnesium ..... Jan. *78
Prior, A. A. Answer to question.... July *125

RALSTON, A. W. New fatty acid derivatives ..... Feb. *126
Reed, Jesse O. Upgrading oleoresin by a new process..... Dec. *68
Rolland, Guy F. Safe practice in the manufacture of commercial detonators ..... June *96
Rose, H. J. Opportunities for chemical engineers in fuel technology. Jan. 91
Rounds, Harold P. & J. T. Kiernan. Building fabrication and comparative costs *104

SAGINOR, S. V. Thermal insulation for industry ..... Jan. *82
Schilling, Clarence J. New nomograph solves flow equations for thin plate orifices ..... Aug. *91
Seymour, Hale D. On getting ahead. June 130
Smith, D. J. & L. W. Moore. Hydroforming a new refining process.... Apr. *77
Soule, Roland P. Investing in the "chemicals"—the industry ..... Apr. *86
Investing in the "Chemicals"—the stocks ..... May *132
Spencer, H. C. & others. Calco's new waste treatment plant..... Mar. *84
Spooner, William B., Jr. Preference ratings are up to you..... Oct. 86
Styles, Arthur D. Dissolving pulp in wartime ..... Dec. *80

TRUMP, Edward N. Alumina production, 1892 ..... Sept. *146

VERNAM, Harold Draper. Materials for the building ..... May *112
Vonachen, F. J. Steam engine performance shows savings in power costs for process plants ..... May 138

WACHTEL, Curt. German air raid defense of factories ..... Apr. *92
Weber, A. P. & A. Brothman. Design of a urea resin plant..... Dec. *73
Weiss, Francis J. Opportunities for chemical industries in Alaska... Sept. *116
White, Alfred H. & W. H. Dow. Climaxing 50 years of chemical engineering pioneering ..... Dec. *66
White, R. E. & D. F. Othmer. New apparatus determines heat transfer coefficients for condensing vapors of various alcohols..... July *114
Williams, E. C. & associates. Economic aspects of synthetic glycerine production ..... Jan. *87
Woodward, E. R. Aqua ammonia solutions—their freezing points and freeze-resistant applications. Apr. *115
Significance of ammonia in the national defense ..... Feb. *117
Woodward, Roland. 1941 aspects of plant design and process layout.. May *90

NOTES—(A) Abstract; (c) Comment; (ed) Editorial; (E.N.) Equipment News; * Illustrated; (N) News; (P.N.) Plant Notebook.

9608